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**Prod'n. of bonded fibre mouldings, etc. - by mixing e.g. wood chips with starch type binder in twin screw extruder, adding moisture etc., expanding from nozzle and rolling**

**Patent Assignee:** RETTENBACHER M; KAINDL HOLZINDUSTRIE M; KAINDL M HOLZIND;  
KAINDL M; KAINDL M HOLZINDUST

**Inventors:** RETTENBACHER M

### Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
WO 9014935	A	19901213				199101	B
AT 8901392	A	19910215				199112	
AU 9057454	A	19910107				199115	
ZA 9004138	A	19910327	ZA 904138	A	19900530	199118	
CS 9002832	A	19910813				199146	
PT 94291	A	19911231				199206	
FI 9105772	A	19911209				199211	
EP 477203	A	19920401				199214	
NO 9104747	A	19920123				199217	
DD 297931	A5	19920130	DD 341331	A	19900605	199226	
EP 477203	B1	19930915	EP 90908156	A	19900605	199337	
			WO 90AT54	A	19900605		
DE 59002765	G	19931021	DE 502765	A	19900605	199343	
			EP 90908156	A	19900605		
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HU 64890	T	19940328	HU 905209	A	19900605	199417	
			WO 90AT54	A	19900605		
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			SU 5010787	A	19911206		
CZ 284602	B6	19990113	CS 902832	A	19900607	199908	
US 5916503	A	19990629	WO 90AT54	A	19900605	199932	
			US 92777350	A	19920203		
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SK 280207	B6	19990910	CS 902832	A	19900607	199950
US 6022615	A	20000208	WO 90AT54	A	19900605	200014
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			WO 90AT54	A	19900605	
CA 2062789	C	20020917	CA 2062789	A	19900605	200267
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**Cited Patents:** 1. journal ref.; CH 405685; DE 1653263; DE 1704754; EP 113595 ; EP 201625 ; JP 58183242

### Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
WO 9014935	A		20		
Designated States (National): AT AU BG BR CA CH DE DK FI GB HU JP KP KR LU NL NO RO SE SU US					
Designated States (Regional): AT BE CH DE DK ES FR GB IT LU NL SE					
EP 477203	A		20		
Designated States (Regional): AT BE CH DE DK ES FR GB IT LI LU NL SE					
DD 297931	A5			B27N-003/28	
EP 477203	B1	G	16	B27N-003/28	Based on patent WO 9014935
Designated States (Regional): AT BE CH DE DK ES FR GB IT LI LU NL SE					
DE 59002765	G			B27N-003/28	Based on patent EP 477203
					Based on patent WO 9014935
ES 2044591	T3			B27N-003/28	Based on patent EP 477203
HU 64890	T			B27N-003/28	Based on patent WO 9014935
FI 93528	B			B27N-003/28	Previous Publ. patent FI 9105772
RU 2105776	C1			C08J-009/12	
CZ 284602	B6			B27N-003/28	Previous Publ. patent CS 9002832
US 5916503	A			B29C-044/20	Based on patent WO 9014935
NO 305890	B1			B27N-003/28	Previous Publ. patent NO 9104747
SK 280207	B6			B27N-003/28	Previous Publ. patent CS 9002832
US 6022615	A			B32B-005/22	Div ex application WO 90AT54
					Div ex application US 92777350
HU 218006	B			B27N-003/28	Previous Publ. patent HU 64890
					Based on patent WO 9014935
CA 2062789	C	E		B27N-003/28	Based on patent WO 9014935

**Abstract:**

WO 9014935 A

Mouldings for structural applications, insulation and/or packaging, and pref. made of chipboards, and/or fibre prods. and/or boards, are produced by extruding at high temp. and pressure a material made up of particles (and partic. fibres) mixed with at least one binder and (where appropriate) additive. The fibrous material has a total moisture content of 6-25 wt.% and 8-20 wt.% in partic.; alternatively this applies to the additive material. The material is mixed with a biopolymeric (pref. starch type) binder which forms a melt and/or gel at the temp. and pressure of extrusion; the fibrous material used is pref. in biogenic and macromolecular particles; any additive used is also present. The mixt. is subjected to mechanical stresses at the elevated temp. and pressure to form the melt and/or gel; immediately, and pref. forming a sealed surface on the extrusion, the mixt. is allowed to expand by releasing its pressure so that it reaches a natural/inherent moisture content. The material used pref. includes a bi-functional modifier such as short chain di- or polycarboxylic acids, di- or polythiols or derivs., or mols. contg. tert. amino gps.

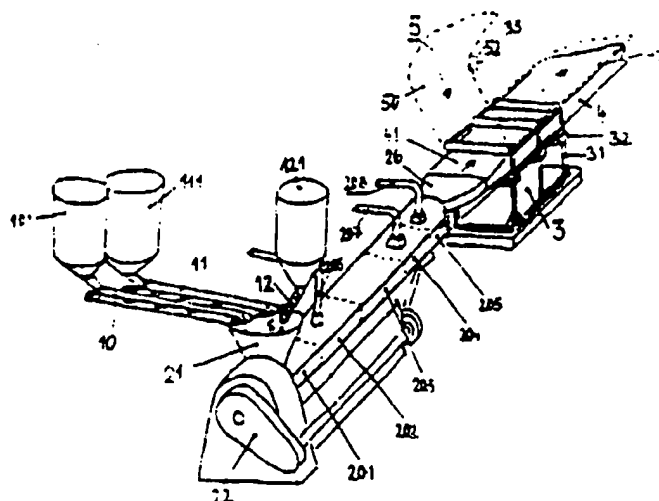
ADVANTAGE - Mouldings are prepd. by using conventional extruders without adding binder beforehand and produces them in one single operation. It utilises raw materials which are environmentally favourable. The prods. are highly isotropic and have lower density but higher mechanical stability than earlier prods.

Dwg.1/2

EP 477203 B

A process for the mfr. of materials for use in the construction industry, or as structural or packaging materials, made by producing shaped parts from moist, natural, fibre-contg. or fibre-shaped material and a binder, which are mixed and compacted in a screw extruder having a shape-imparting nozzle attached, characterised in that (a) at least one biopolymeric, natural material is used from at least one of the following gps.: starches, dextrans, pectins, collagens, proteins or caseins, (b) the water content of the mixt., relative to the total mass, is adjusted to 6-25%, (c) through the effects of compaction and shear forces applied in the screw extruder, the pressure and temp. of the mixt. is increased until the binder melts to form a gel, (d) immediately after it is formed, the molten gel mixt. is decompressed in such a way that as the finely dispersed moisture content undergoes spontaneous expansion and turns to steam, a fibre and/or chip-based shaped part is formed which has a lower overall density but a substantially denser surface than conventional shaped parts of similar type.

(Dwg.1/2)



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**Wooden decorative objects prodn. - by impregnating a sheet of material with resin, laminating the prepregs with wood chips and heat-curing the laminate under pressure**

**Patent Assignee: YAMAHA CORP**

**Inventors: IWATA R; MIYAMOTO Y; NAGASHIMA H; NAKAJIMA K; OGATA T; OMOTO K**

### Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
DE 3839335	A	19890629	DE 3839335	A	19881122	198927	B
FR 2624055	A	19890609	FR 8816097	A	19881125	198930	
GB 2213427	A	19890816	GB 8827290	A	19881123	198933	
JP 1174441	A	19890711				199022	
JP 1150544	A	19890613				199023	
JP 1152001	A	19890614				199023	
JP 1152002	A	19890614				199023	
JP 1152058	A	19890614				199023	
JP 1152059	A	19890614				199023	
US 4963214	A	19901016	US 88281807	A	19881208	199044	
IT 1225369	B	19901113	IT 8812597	A	19881202	199224	
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JP 2535994	B2	19960918	JP 87333221	A	19871229	199642	
KR 9604109	B1	19960326	KR 8816287	A	19881207	199913	

**Priority Applications (Number Kind Date):** JP 87U199882 U ( 19871229); JP 87310024 A ( 19871208); JP 87311617 A ( 19871209); JP 87311618 A ( 19871209); JP 87312499 A ( 19871210); JP 87312500 A ( 19871210); JP 87333221 A ( 19871229)

### Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
DE 3839335	A		12		
US 4963214	A		12		
JP 92033271	B		5	B32B-021/02	Based on patent JP 1150544
JP 92033272	B		5	B32B-021/02	Based on patent JP 1152059
JP 2535985	B2		5	B32B-021/08	Previous Publ. patent JP 1152058

JP 2535994	B2		4	B32B-021/08	Previous Publ. patent JP 1174441
IT 1225369	B			B27M	
GB 2213427	B			B32B-003/14	
KR 9604109	B1			B32B-021/08	

**Abstract:**

DE 3839335 A

(+09.12.87(2),10.12.87(2),29.12.87-JP-311617/8,312499/500, 333221) Wooden decorative objects (I) are mfd. by (a) impregnating a sheet of material (II) with curable resin (III) soln. to form a prepreg sheet (IV), (b) laminating (IV) with small wood chips (V) and (c) during the laminate by heating under pressure. A modification of the process comprises curing and moulding a resin sheet contg. (V) distributed in the matrix, bonding these composite sheets to both surfaces of a backing board to form a decorative multi-wood-effect laminate, cutting or grinding the end of the laminate and bonding another composite sheet to the cut end. In a further modification the cut end is coated with a layer of resin, a one-sided adhesive strip with (V) stuck to one surface is applied so that the wood chips are pressed into the resin layer, and the resin is cured.

USE/ADVANTAGE - (I) are useful for the prodn. of furniture veneers and for interior automobile and household decoration. (I) have adequate strength and high wear resistance, give a bulk wood effect, and can be mfd. with high productivity.

Dwg.0/17

GB 2213427 B

A method of producing a wood containing decorative laminate comprising the steps of: (i) impregnating a material sheet with hardenable resin solution to form a resin solution to form a resin prepregnated sheet; (ii) forming a laminated composite by: (ii)(a) superimposing a plurality of said resin prepregnated sheets to form a superimposed aggregate and, a prescribed number of times, alternately placing firstly small wooden pieces and secondly a further said resin prepregnated sheet on one surface of said superimposed aggregate; or (ii)(b) placing small wooden pieces on one surface of each of a plurality of said prepregnated sheets to form a plurality of resin composites and superimposing said plurality of resin composites; and (iii) hardening said laminated composite by heating under pressure. (Dwg.2/3)

US 4963214 A

Decorative wooden article mfr., involves placing wood pieces upon fibrous sheet impregnated with hardenable resin, and hardening the laminated assembly by hot pressing.

Specifically the fibres are glass, polyamide or polyester, and the resin is epoxy, unsatd. polyester, diallylphthalate, polyurethane, silicone or acrylic, opt. contg. filler such as CaCO<sub>3</sub>, talc, TiO<sub>2</sub>, silica or glass powder. Specifically wood pieces of ebony, beech, oak, cedar, hinoki, pine or cypress are stabilised by acetic anhydride, polyethylene glycol, or the same resins which impregnate the sheet.

Opt. abrasive particles in the resin are glass, graphite, CaCO<sub>3</sub>, MoS<sub>2</sub>, BaSO<sub>4</sub>, alumina or talc. Opt. the resin contains non-combustible particles of phosphoric acid ester, halide hydrocarbon, antimony oxide or aluminium hydroxide.

USE - Covering furniture, interior decorations, car accessories.

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**Heat resistant laminate resistant to e.g. cigarette burns on furniture - comprises thermosetting resin-impregnated prepreg top layer and rubber or thermoplastic flexible layer bonded by hot melt adhesive**

**Patent Assignee:** DAISO CO LTD

**Inventors:** SUGAHARA M; TANAKA Y; YOSHINOBU M

#### Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
DE 19610079	A1	19960926	DE 1010079	A	19960314	199644	B
JP 9123366	A	19970513	JP 9627895	A	19960215	199729	
TW 314488	A	19970901	TW 95108812	A	19950824	199803	
US 5780147	A	19980714	US 96614548	A	19960313	199835	
JP 3075167	B2	20000807	JP 9627895	A	19960215	200042	

**Priority Applications (Number Kind Date):** JP 95221906 A ( 19950830); JP 9554544 A ( 19950314)

#### Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
DE 19610079	A1		10	B32B-027/08	
JP 9123366	A		7	B32B-027/32	
TW 314488	A			B32B-027/00	
US 5780147	A			B32B-015/04	
JP 3075167	B2		7	B32B-027/04	Previous Publ. patent JP 9123366

#### Abstract:

DE 19610079 A

A laminate consisting of (A) a heat-hardenable, resin-impregnated prepreg as the top layer and (B) a rubber or thermoplastic layer of good flexibility, bonded together by (C) a hot melt resin adhesive, is such that: (i) the resin in prepreg (A) is diallyl phthalate, unsatd. polyester, or a phenolic, aminoalkyd, epoxy, acrylurethane or melamine resin; (ii) layer (B) is of chlorinated polyethylene, polybutene, EVA copolymer, ethylene propylene-diene copolymer, polychloroprene, chlorosulphonated polyethylene, styrene-butadiene copolymer or PVC; and (iii) adhesive (c) has m.pt. 60-165deg. C and solubility parameter 7.4-10.9 and is of EVA copolymer, ethylene-acrylic acid copolymer, carboxylated polyethylene, polyurethane, polybutylene terephthalate or a modified EVA copolymer.

USE - Claimed uses are in furniture parts, (kitchen) working surfaces or flooring.

ADVANTAGE - The laminated has outstanding heat resistance, being resistance to cigarette burns or



marking by hot cooking utensils.

Dwg.0/4

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